

## ABSTRACT

A system and method for implementing local base stations is provided. The system includes a plurality of mobile devices, a local area network (LAN), and a plurality of local base stations coupled to the LAN. Each local base station in the system has a unique address on the LAN, and is configured to transmit and receive data packets to and from the mobile devices. Using the unique address assigned to a particular local base station, the data packets may be transferred between local base stations over the LAN. Each local base station in the system may include a central processing unit (CPU) coupled to a sound card and a network interface card, and a transmitting and receiving means that sends and receives modulated RF signals to and from the mobile devices. The sound card is configured to demodulate an incoming RF signal to produce an incoming frame of data, and to generate an outgoing modulated RF signal from an outgoing frame of data. Each local base station may also include a software module executed by the CPU and configured to extract a packet of data from the incoming RF signal and encode the packet of data into an outgoing datagram that includes addressing information enabling the outgoing datagram to be directed to another local base station over the LAN, and also configured to extract a data packet from an incoming datagram received from the LAN and encode the data packet into the outgoing frame of data that includes information enabling the outgoing frame of data to be transmitted to the mobile device.